

Calculating Weight

Gold



Calculate the weight of the Mars rover Curiosity on each of the planets in our Solar System.

Complete the units for each column of the table.

Planet Name	Gravitational Field Strength	Mass of Mars rover Curiosity (kg)	Weight
Mercury	3.70		
Venus	8.87		
Earth	9.81		
Mars	3.71		
Jupiter	25.00		
Saturn	10.40		
Uranus	9.00		
Neptune	11.70		

Extra Questions

1. Which planet has the greatest gravitational field strength?

2. On which planet does the Curiosity have the least weight?

3. On Pluto, the Curiosity has a weight of 441N. Calculate the gravitational field strength of Pluto.

4. Using the information in the table, which planet has the greatest mass? Explain your answer.



Calculating Weight Answers

Planet Name	Gravitational Field Strength N/kg	Mass of Mars rover Curiosity (kg)	Weight N
Mercury	3.70	900	3330
Venus	8.87	900	7983
Earth	9.81	900	8829
Mars	3.71	900	3339
Jupiter	25.00	900	22 500
Saturn	10.40	900	9360
Uranus	9.00	900	8100
Neptune	11.70	900	10 530

1. Which planet has the greatest gravitational field strength?

Jupiter

2. On which planet does the Curiosity have the least weight?

Mercury

3. On Pluto, the Curiosity has a weight of 441N. Calculate the gravitational field strength of Pluto.

$$W = mg$$

$$\text{rearranged to } g = W \div m$$

$$441 \div 900 = 0.49\text{N/kg}$$

4. Using the information in the table, which planet has the greatest mass? Explain your answer.

Jupiter – it has the largest gravitational field strength. Gravitational field strength increases with the mass of a body.

